Drug-induced eosinophilia: a rare complication of dobutamine infusion: a case report

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Introduction: Peripheral eosinophilia is defined as an absolute eosinophil count (EC) exceeding 500/μL[1]. Clinical manifestations range from asymptomatic cases and hypersensitivity reactions, such as skin eruptions to severe presentations mimicking sepsis with end-organ involvement, including myocarditis.

Case report: We present a case of a 56-year-old male with biventricular dilated cardiomyopathy and a history of mitral and tricuspid valve annuloplasty, who had remained clinically stable 18 months following surgery. He gradually developed worsening heart failure (HF) and required recurrent HF hospitalizations. During one of those, in January 2025 his echocardiogram showed severely dilated left ventricle with poor left and right ventricular function. Right-heart catheterization demonstrated increased filling pressures and severely reduced cardiac index. Intravenous furosemide was administered initially, and dobutamine infusion (4 mcg/kg/min) two weeks later with initial improvement in haemodynamics. Fourteen days later, a continuous rise in EC and leukocytes was observed with a peak EC of 10,350/μL (reference range 0–430 /μL) (**Figure 1**), while liver function tests remained normal. The patient also developed a rash with vesicles on the lower extremities (**Figure 2**). Dermatologic examination revealed plaques, macules, and papules, and histopathology of skin biopsy confirmed eosinophilic infiltrates. Combination of eosinophilic infiltrates in skin lesions with blood eosinophilia raised suspicion of drug-induced hypersensitivity, and careful investigation of the recently started medications revealed dobutamine as the most likely cause. Discontinuation of dobutamine and transition to milrinone led to complete resolution of both cutaneous manifestations and eosinophilia.

Conclusion: This case underscores the possibility of dobutamine-induced eosinophilia, potentially related to the drug or its sulfite preservatives, which can aggravate the clinical course in patients with advanced decompensated heart failure. Due to its nonspecific presentation, clinicians should monitor complete blood count and skin changes closely. Early recognition and prompt discontinuation of the offending agent are crucial for rapid resolution and prevention of further clinical deterioration.

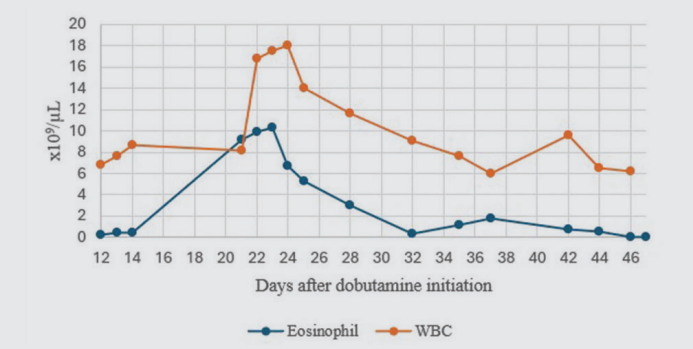

FIGURE 1. Progression of eosinophil and leukocyte count after dobutamine initiation.
WBC: white blood cell count

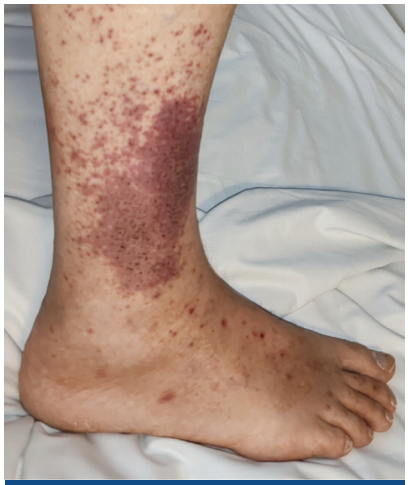

FIGURE 2. Cutaneous manifestations of dobutamine-induced eosinophilia.

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LITERATURE

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